Addendum I

July 1999

AWIPS Site Component
Commissioning Evaluation Package
for NWS Field Office Use

Table of Contents

Acronyms

ACN	AWIPS Communication Network
AFOS	Automation of Field Operations and Services
AHPS	Area-wide Hydrological Prediction System
ALERT	Automated Local Evaluation in Real Time
APO	AWIPS Program Office
ARC	Automated Remote Collector
ARONET	Alaska Region Operations Network
AS	Application Server
ASOS	Automated Surface Observing System
AVN	Aviation
AWIPS	Advance Weather Interactive Processing System
BUFR	Binary Universal Format for data records
CLAM	Cloud Advection Model
CLI	Daily Climatological Report
CLM	Monthly Climatological Report
CONUS	Continental United States
COTS	Commercial Off-The-Shelf
CP	Communication Processor
CRR	Commissioning Readiness Report
CRS	Console Replacement System
CUT	centralized user training
CWA	Center Weather Advisory
DAPM	Data Acquisition Program Manager
DPA	Digital Precipitation Array
DS	Data Server
DSM	Daily Summary Messages
DTMF	dual-tone multifrequency
ECMWF	European Centre for Medium range Weather Forecasting
EHB	Engineering Handbook
EJS	Water Supply Outlook
EO	evaluation official
ESA	electronics systems analyst
ESP	Extended Streamflow Prediction
ETA	ETA Forecast Model

FFG	Flash Flood Guidance
FJF	Flood Potential Outlook
FRN	Frame Relay Network
GRIB	Gridded Binary format
HADS	Hydrometeorological Automated Data System
HDP	Hourly Digital Precipitation
HIC	Hydrologist-in-Charge
HMT	Hydrometeorological Technician
HSA	Hydrologic Service Area
ICWF	Interactive Computer-Worded Forecast
IFLOWS	Integrated Flood Observing and Warning System
LAMP	Local AWIPS MOS Program
LARC	Limited Automated Remote Collector
LDAD	Local Data Acquisition and Dissemination
LDS	Lightning Detection System
LETS	Law Enforcement Telecommunication System
LS	local server
MAP	Mean Areal Precipitation
MAPE	Mean Areal Potential Evapotranspiration
MAREP	Marine Report Program
MAT	Mean Areal Temperature
MESO	Mesoscale
MESONET	Mesoscale Observation Network
METAR	Meteorological Aviation Report
MHS	message handling system
MIC	Meteorologist-in-Charge
MicroART	Microcomputer-based Automated Radio Theodolite
MOS	Model Output Statistics
MRF	Medium Range Forecast
MSAS	MAPS Surface Assimilation System
MSM	Monthly Summary Messages
NCEP	National Centers for Environmental Predication
NCF	Network Control Facility
NDBC	National Data Buoy Center
NGM	Nested Grid Model
NIST	National Institute of Standards and Technology

NWR	NOAA Weather Radio
NWS	National Weather Service
NWSRFS	NWS River Forecasting System
NWSTG	NWS Telecommunication Gateway
NWWS	NOAA Weather Wire Service
OCONUS	Outside Continental United States
OM	Office of Meteorology
OML	Operations Manual Letter
OTR	Operational Trouble Report
OUT	On-site user training
PAMS	Product Availability Monitoring System
PC	personal computer
PIL	product inventory list
PNS	public information statement
PRONET	Pacific Region Operations Network
PUES	Principal User(s) External Systems
PUP	Principal User Processor
QCMS	Quality Control and Monitoring System
QPF	Quantitative Precipitation Forecast
RCM	Radar Coded Message
RD	Regional Director
RDA	Radar Data Acquisition
RFC	River Forecast Center
RH	regional headquarters
ROSA	Remote Observation System Automation
RPG	Radar Products Generator
RPS	Requirements Performance Summary
RTA	Remote Terminal to AFOS
RUC	Rapid Update Cycle
RVA	River Summary
RVI	River Ice Product
RVR	River Recreation Statement
SAF	Store And Forward
SAIDS	System Atlanta Information Display System
SCM	Systems Commissioning Manager
SETS	State Enforcement Telecommunication System

SHEF	Standard Hydrometeorological Exchange Format
SHPS	Site-specific Hydrological Prediction System
SIMPACT	
SLOSH	Sea, Lake, and Overland Surges from Hurricanes
SLP	Sea Level Pressure
SLYH	Sanders, LaRue, Younkin, and Hovermale
SPECI	Aviation Selected Special Weather Report
TAF	Terminal Aviation Forecast
TS	terminal trans server
TWEB	Transcribed Weather Enroute Broadcast
UCP	user control position
UKMET	United Kingdom Meteorological office
WAN	wide area network
WHFS	WFO Hydrologic Forecast System
WSH	Weather Service Headquarters
WSOM	Weather Service Operations Manual
WSR-88D	Weather Surveillance Radar-1988 design Doppler
WWA	Watch/Warning/Advisory
WWV	time signal broadcast letters
www	world-wide-web
WXR	Weather Wire and Plot (PLT) Products software package

I-1 Introduction

The *Advance Weather Interactive Processing System (AWIPS) Site Component Commissioning Evaluation Package* provides the instructions, responsibilities, and forms used by the evaluation official (EO) at field offices for conducting and documenting an AWIPS site component commissioning evaluation.

I-1.1 General Overview

The AWIPS *commissioning process* is performed at each office to verify its ability to fully support field operations and to demonstrate AWIPS' ability to replace current systems, within the office, performing a similar function. The *commissioning evaluation* is, thus, a series of checklist items verified during the commissioning evaluation conducted at the field site. As each item is deemed satisfactory, it is checked off from the list. In a number of cases, checklist items may be considered "non-applicable" to the office environment, in which case these items would not be evaluated. Checklist items not considered satisfactory are handled in one of the following ways:

- The problem is corrected on-site through a new procedure,
- An AWIPS software "point release" for the correction will be provided to the site, or
- No correction to the problem is imminent and, as a result, the current method is retained.

Each of these options is discussed in more detail. No unsatisfactory item is allowed to continue; instead, the commissioning of the site is suspended until the problem is resolved.

A world-wide-web (www) page has been established for assisting each office with understanding some of the network changes that are occurring during the commissioning phase. There are network diagrams for each site, an official National Weather Service (NWS) product identification translator, and specialized reports that can assist with completing the commissioning forms.

Once the evaluation is finished successfully, the EO completes the enclosed forms and assembles them into the *AWIPS Site Component Commissioning Report.* The office/center management[1] signs the report recommending approval. Offices other than National Centers for Environmental Predication (NCEP) forward the *Commissioning Report* to the region, while NCEPs send it to the NCEP Director. The regional AWIPS focal point reviews and makes any corrections, as necessary.

> **Note:** For commissioning AWIPS at National Centers, the duties of the regional AWIPS focal point are assumed by the NCEP AWIPS focal point.

[1] Meteorologist-in-Charge (MIC), Hydrologist-in-Charge (HIC), or NCEP Director.

After corrections are resolved, the regional or NCEP Director signs the forms, indicating a recommendation for the commissioning before final approval at the Weather Service Headquarters (WSH). The Director, NWS, may delegate the approval to the regional director (RD) or NCEP Director at any time.

I-1.2 Contents of Package

The *AWIPS Site Component Commissioning Evaluation Package* consists of the following:

AWIPS Site Component Commissioning Report Cover Page

- The cover page (included in Appendix I-B, page I-B-1).
- Instructions for completion of this page.

AWIPS Site Component Commissioning Recommendation/Approval Forms

- Description of the forms.
- The forms (included in Appendix I-B, page I-B-2 and I-B-8).
- Instructions for completion of the forms.

AWIPS Commissioning Checklist

- The checklist (included in Appendix I-B, page I-B-9).
- Commissioning evaluation criteria (Appendix I-A), used for providing guidelines to the EO, cross-references the *Commissioning Test Procedure* associated with the criteria.
- General instructions for completing the checklist.

Note: The documentation required on-site is listed in Appendix I-C.

AWIPS Commissioning Readiness Report (CRR)

- Instructions for using the CRR during the evaluation.

AWIPS Site Component Commissioning Report

- An example of a completed *AWIPS Site Component Commissioning Report* is in Appendix I-E.

Appendix I-A provides the AWIPS *Commissioning Evaluation Criteria* used by the EO to perform the evaluation during the commissioning evaluation period, normally several months. The elements and criteria are the guidelines for determining whether or not a component of AWIPS is

satisfactory. When all the pertinent criteria for the site have been successfully met, the *Commissioning Report* is prepared and ready for review and approval.

I-1.3 Required Background Reading

The *Site Component Commissioning Plans* (provided by the regional or NCEP AWIPS focal point) are required reading for all AWIPS EOs. These *Plans* provide an overview of the entire AWIPS commissioning process, which includes descriptions of AWIPS, how AWIPS interfaces with other office systems, the impact of AWIPS on field operations, and other details about the commissioning process. The *Plans* also provide aspects concerning current systems and how they will transition to AWIPS.

I-1.4 Responsibilities for Conducting the Site Evaluations

The responsibilities for the conduct of site component evaluations are as follows:

- **Systems Commissioning Manager (SCM)**:

  The SCM is responsible for the management of the AWIPS commissioning process. Specifically, the SCM, with reference to the conduct of site component evaluations:

  a. Distributes copies of the *Site Component Commissioning Plans* to the appropriate regional or NCEP AWIPS focal point along with a site-specific *AWIPS CRR* to be used during the evaluation.

  b. Provides guidance and support, if necessary, in the resolution of deficiencies that can be addressed with regional/center resources, coordinates and approves solutions in need of WSH involvement, and serves as approval authority for regionally/locally developed commissioning notes and work-arounds.

  c. Tracks the status of the AWIPS evaluations and reports to NWS management, as required.

- **Regional or NCEP AWIPS Focal Point**:

  The regional or NCEP AWIPS focal points are responsible for the management of all AWIPS commissioning activities within their region. Specifically, each regional or NCEP AWIPS focal point:

  a. Distributes AWIPS evaluation packages to the office/center management.

  b. Coordinates the resolution of deficiencies that can be addressed by regional or NCEP resources and obtains approval of the solutions from the SCM.

  c. Coordinates the resolution of deficiencies requiring national headquarters involvement with the SCM.

d. Reports the status of AWIPS commissioning activities in the region or center to regional/center management and the SCM.

- **Office/Center Management:**

The office/center management is responsible for the management of the commissioning activities for AWIPSs within the manager's geographic area of responsibility.

Note: For commissioning AWIPS at National Centers, the duties of the office/center management are assumed by the Center Director or Chief, Meteorological Operations Division.

Specifically, each office/center management:

a. Selects the EO.

b. Provides EOs with a copy of the *Site Component Commissioning Plans*.

c. Provides EOs with the evaluation package for their particular AWIPS.

d. Provides the EOs with guidance and support, as required, in the resolution of deficiencies that would result in an unsatisfactory rating for the AWIPS.

e. Reviews and confirms the completeness and accuracy of *AWIPS Site Component Commissioning Reports* by signing and forwarding them to the regional or NCEP AWIPS focal point.

f. Reports on the status of commissioning activities to the AWIPS focal point.

- **EO:**

The EO is responsible for the conduct of the commissioning evaluation of the assigned AWIPS. Specifically, the EO:

a. Conducts the evaluation, with assistance from appropriate operations and system administration personnel, and indicates evaluation elements that are satisfactory by appropriate entries in the *AWIPS Commissioning Checklist* for the site.

b. Initiates actions, as required, in coordination with the office/center management, to correct deficiencies uncovered during the evaluation.

c. Compiles the *AWIPS Site Component Commissioning Report* for the site, confirms the completeness and accuracy of the evaluation by signing it, retains copies of the *Commissioning Report* and supporting materials, and sends the original to the appropriate review officials.

d. Reports on the status of commissioning activities to the review officials.

I-2 Completing an AWIPS Site Component Commissioning Report

The following instructions describe the processes for completing the forms for the *AWIPS Site Component Commissioning Report*. Electronic WordPerfect format copies of each portion of the report are available through the www commissioning page (see Section 5.2 of the *Plan*).

I-2.1 AWIPS Site Component Commissioning Report Cover Page

The *AWIPS Site Component Commissioning Report* cover page is included in Appendix I-B. In most cases, the information within the blocks is self explanatory. The remaining portions of the documentation are discussed below. Appendix I-E provides an example of a completed cover page.

Steps in completing the cover page are:

Step 1. Type the **Office Name** and **Office SID**.

Step 2. Type the appropriate **Office Type** as: NWSFO, NWSO, RFC, or NCEP.

Note: For Alaska and Pacific sites functioning similar to NCEPs, enter NCEP followed by "- AAWU" or "- PHC."

Step 3. Enter the **NWS Region** or **Center** identifier.

Step 4. Enter the approving official title, initially, Director, NWS. If approval is delegated to the regional or NCEP Director, this title is the correct entry.

Step 5. Leave the **Date Commissioned** blank. The SCM will complete this field.

I-2.2 AWIPS Commissioning Checklist

The *Commissioning Evaluation Criteria* are the detailed guidelines used by the EO to determine compliance with site requirements. The *AWIPS Commissioning Checklist* (Appendix I-B), reflecting the *Commissioning Evaluation Criteria*, is organized into seven categories:

- *Government Acceptance of the AWIPS*

  Verifies that the Government has accepted all the equipment from the prime contractor and the necessary transfer/property documentation has been completed.

- *Adequate availability of trained operations and system administration personnel*.

  Validates that the office staff members are trained to operate and administer the AWIPS through formal course work, centralized user training (CUT), and on-site user training (OUT). Requires staff to be proficient in the use of AWIPS in the performance of their duties.

- *Satisfactory performance of system interfaces.*

  Validates through procedure and information provided to each site the performance of each system required to be interfaced into AWIPS and the reconfiguration of communication networks in support of those being interfaced. Examples of systems to be interfaced include: Automated Surface Observing System (ASOS), Weather Surveillance Radar 1988 design Doepler (WSR-88D), NOAA Weather Wire Service (NWWS), Mesoscale Observation Network (MESONET), Limited Automated Remote Collector (LARC)/Automated Remote Collector (ARC), Automated Local Evaluation in Real Time (ALERT)/Integrated Flood Observing and Warning System (IFLOWS), etc.

- *Satisfactory support of associated NWS forecast and warning services.*

  Verifies through everyday experience and, in some cases, actual procedures to be performed, AWIPS' ability to support the warning and forecast mission of each office type, i.e., NWSFO/NWSO/RFC/NCEP. Areas included in this category range from technical coordination with office community, evaluation of AWIPS in everyday operations over a significant period of time to determine "robustness," transmission of weather products using the AWIPS Communication Network in a test mode, and scientific validation of AWIPS applications and map backgrounds.

- *Proper functioning of service backup capabilities.*

  This category consists of both the system and service components using a building block process. If an office experiences system or service backup during the evaluation period and it worked properly, no further checkout is required. If the office is forced into a backup scenario and the procedure failed, a remedy needs to be developed for future failure episodes. If none was experienced during this period, a formal checkout procedure will be invoked.

- *Adequate documentation for operations and system administration.*

  Documentation under consideration is user manuals, system administration manuals, technical documentation for local applications development, and Weather Service Operations Manual (WSOM) chapter updates impacting field operations with the introduction of AWIPS.

- *System Functions and Security.*

  A new category specific to system functions such as validating localization of system-to-site conditions, ability of Network Control Facility (NCF) to monitor site conditions, archiving, validation of communication throughput of locally produced products as well as those from other locations, and ensuring that AWIPS is secure to outside users.

The *Commissioning Evaluation Criteria* (including instructions/procedures) for the evaluation are provided as Appendix I-A.

During evaluation, the AWIPS will be operated at first in the **test mode.** Official NWS products issued over the wide area network (WAN) are distributed as **unofficial**. The WAN will be activated to accept official NWS products in accordance with Appendix C of the *Plan*. The evaluation period is expected to last several months.

Some of the checklist criteria involve tasks having to be performed over a period of time. For example, determining WAN stability for AWIPS traffic flow requires several months. Other items can be evaluated quickly or during normal operations. Technical coordination (item 4a) may take longer than others to complete to ensure that the user community is well informed of the commissioning event. A number of Commissioning Test Procedures have been developed to assist field sites exercise AWIPS.[2]

> **Note:** The first requirement, i.e., acceptance, will have been documented as a prerequisite for the initiation of the component's commissioning process. Also, the CUT classes will, more than likely, have been completed by the staff. Therefore, this item will be considered satisfactory.

The EO will draw on the expertise, assistance, and input of the NWS office staff, as required, while performing the evaluation. The EO is not expected to be an expert on all the features of AWIPS. Some items require meteorologist or hydrologist input, while other items require input from the hydrometeorological technician or electronics staff to complete.

Steps in completing the *AWIPS Commissioning Checklist* are:

Step 1. Verify that the **Office SID** and **Office Name** are correct.

Step 2. Review the evaluation elements in Appendix I-A. Before beginning the evaluation, determine if all of the criteria are clear enough and which ones apply to your location. If the criteria are not clear, ask office staff who might assist with understanding the criteria. Call the regional/center AWIPS focal point if questions remain.

Step 3. When the EO is comfortable with understanding the process and the criteria, begin performing the evaluations:

a. Gather the required information from the operations and electronics staff, as necessary. These do not have to be done in any order; rather, complete the ones easiest to accomplish first.

b. When the criterion for an evaluation element is met, use the *Checklist* to mark the corresponding "S" (Satisfactory) column with a check mark or “X”. If a *Checklist* item is not applicable to the site, enter a check under the N/A column.

Note: All checklist items must have a check in either the “S” or “N/A” column.

[2] To obtain a copy of the latest test procedure, refer to the AWIPS Commissioning home page.

c. If deficiencies are found that would prevent assignment of a satisfactory rating to an evaluation element, notify the office management as appropriate:

- Initiate necessary corrective action(s), and/or
- Develop a solution (additional maintenance, training, clarification, or approved work-around or commissioning note; see Section 4.1.4 of the *Plan*).

d. Implement any approved work-arounds or commissioning notes (see Section 4.1.4 for details) and, when satisfactory achievement of the evaluation element is demonstrated, mark the corresponding "S" column with a check mark and:

- Document the work-around under the "Remarks" section of the checklist
- Place a number, corresponding to the work-around, in the "W/#" (Work-around) column.

I-2.3 Commissioning Work-Arounds and Notes

The EO must review and become thoroughly familiar with Section 4.1.3 of the *Plan*. This section discusses the definitions of work-arounds and commissioning notes. An acceptable national work-around is one in which WSH, in coordination with the regions, agrees that a function of AWIPS is not adequate enough to replace a system already in use. Each national work-around will have a unique number, starting with the alpha character "N" and followed by a 3-digit number (e.g., 001, 002, etc). The work-around is further identified by a title with a short description of the problem and what will be done to correct it. The SCM will coordinate all national work-arounds with AWIPS focal points before putting them into effect. When the EO is conducting the evaluation and determines the need for a commissioning work-around, it is annotated to the *Report* under the **Commissioning Work-Arounds** section. An example of a national work-around is:

N-001 Principal User Processor (PUP) Must Remain

Until AWIPS can replace the critical functionality of the PUP, this equipment will continue in operation. When this functionality is realized in AWIPS in a future software build, the office can deactivate the PUP in accordance with the decommissioning plan for legacy systems.

In addition to national work-arounds, each region can institute a regional/center work-around, provided it does not require Automation of Field Operations and Services (AFOS) to remain. Like national work-arounds, regional/center ones will have a unique identifier starting with an alpha character to signify the region (e.g., A for Alaska, C for Central, etc.) followed by a 3-digit number, with a title, and short description.

Commissioning notes pertain to current systems not described in the commissioning plan specifically, but which must become part of the AWIPS because it does not perform the necessary function. Examples of this situation are mostly regional/center and site-specific functions residing on personal computers (PC) or workstations. AWIPS is designed for the national level and may not cover many of these localized applications. When the EO is conducting the evaluation and

determines the need for a commissioning note, it is annotated to the *Report* under the **Commissioning Notes** section.

An example of a commissioning note is :

> Checklist Element ?? - Until AWIPS can produce a function similar to the Mountain Mapper program, this office will continue to use a PC-version interfaced through an asynchronous port into AWIPS.

I-2.4 AWIPS Commissioning Readiness Report

Because AWIPS will impact office operations in many ways, WSH has developed a site-specific report relaying detailed information about the site transition, called the AWIPS CRR. The EO uses the CRR as a road map for ensuring that all systems and services are transitioning to AWIPS correctly. When the AWIPS CRR arrives, the EO must coordinate the information in the report with office staff assisting in the commissioning process. Information on the CRR can be modified or annotated, as necessary, to reflect actual conditions at the site. However, changes to the CRR may cause final processing delays if they are inconsistent with independent information obtained at the regional/center or WSH levels. Complete each section of the report in accordance with the following instructions:

Steps in completing the CRR are:

Step 1. Verify that the information relating to the office in Part 1 is correct for your location. If not, make the changes in ink right on the CRR or type them onto the correction sheet attached to the CRR. Include a reason for the change, if applicable.

Step 2. Verify that the information contained in Part 2-17 is accurate.

I-2.5 AWIPS Site Component Commissioning Recommendation/Approval Forms

These forms are used to recommend or approve the commissioning of each site AWIPS, including the site components listed in Appendix A *to the Plan* (not to be confused with Appendix I-A). When the evaluation is completed (i.e, the checklist is filled out), any work-arounds/commissioning notes are identified, and the CRR has been reviewed and modified, the EO will complete this form and forward it to the MIC/HIC/NCEP center director for signature. **Do this only when you are confident that all applicable evaluation elements have been met and documented as *satisfactory*.** The AWIPS Site Component Commissioning Recommendation/Approval Form is included in Appendix I-B.

I-2.6 AWIPS Site Component Commissioning Report

An AWIPS Site Component Commissioning Report consists of the **original copies** of the following, in the correct order:

- **!** Completed AWIPS Site Component Commissioning Cover Page
- **!** Completed and signed AWIPS Site Component Commissioning Recommendation/Approval Form
- **!** Completed AWIPS Site Component Commissioning Checklist, including annotated CRR
- **!** Documentation of Not-Applicable elements and approved work-arounds/commissioning notes.

I-3 Processing a Completed AWIPS Site Component Commissioning Report

After the EO has completed the report, it should be sent to the regional AWIPS focal point, **via express mail**.

> **Note:** If the EO is located at the Center, no mailing is required. A copy of the report is to be retained by the EO along with the checklist worksheet and these instructions.

When the report is received at the regional office, the regional AWIPS focal point reviews the material for completeness and verifies that the information is correct. Questions, issues, etc., pertaining to the report must be worked out between the office and the regional office. After this has been accomplished, the regional/center AWIPS focal point will **fax** a copy of the complete report for SCM evaluation prior to the regional/center director signing the report. The SCM will coordinate with the regional/center AWIPS focal point and WSH staff any issues or special situations, as necessary. The SCM will inform the region when the faxed report can be cleared by the region.

The final step in the process at the regional or center level is to have the regional/center director sign the report. If the Director, NWS is the approving official, the original report with signatures and dates in ink will be forwarded to the SCM via express mail. The Director will then sign the report or challenge it. If a challenge does occur, the SCM will work with the region/center/WSH staff to clear the problem. If the Director has delegated this authority to the regional/center level, the approval block will be completed by the regional/center director or designee.

When the *Report* has been cleared by all parties, the SCM will issues notices to this effect and schedule the date and time of the commissioning event. Because communications switching directories are involved in this process, careful coordination between the SCM, WSH NWS Telecommunication Gateway (NWSTG) staff, AWIPS Program Office (APO), and regional and site staff must occur. When everyone involved is ready for the commissioning, the communication switches will take place at the agreed-to time and day.